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January 25, 1849.

Sir R. H. INGLIS, Bart., Vice-President, in the Chair.

The following papers were read :—1. Some remarks on a paper entitled “On the Depth of Rain which falls in the same localities at different Altitudes in the Hilly districts of Lancashire, Cheshire, &c., by S. C. Homersham, C.E.” By John Fletcher Miller, Esq. Communicated by Lieut.-Col. Sabine, R.A., For. Sec. R.S.

The author, after alluding to the discordance between the conclusions at which he had arrived from a discussion of his meteorological observations in the lake district of Cumberland and Westmoreland, described in a former paper, and those drawn from the same facts by Mr. Homersham, in a paper read before the Society on the 25th of May last, states that the results for the year 1848 show a precisely similar gradation to those of the two preceding years; and that the whole of the observations appear to warrant the conclusion which he had ventured to draw from those detailed in his former paper.

He remarks that, as the rain-gauges are, with one exception, situated on the high mountains surrounding the head of the Vale of Wastdale, this valley is the only one which can fairly be selected as a standard in comparing the quantities of rain obtained at the different mountain stations. The discordance between his conclusions and those arrived at by Mr. Homersham, he considers, has arisen from that gentleman having selected the distant and excessively wet locality of Seathwaite at the head of the southern fork of Borrowdale, as a representative of the quantity of water deposited in the valleys generally.

If the receipts of the mountain gauges, he observes, be compared with the rain-fall at Wastdale Head, or in any of the other valleys except Seathwaite, it will be found that the quantity *increases* considerably up to 1900 feet, where it reaches a maximum; and that above this elevation it rapidly decreases, until at 2800 feet above the sea the amount is very much *less* than in the surrounding valleys.

In conclusion, the author states that it appears to him, that much of the discordance in the results obtained at various elevations amongst the mountains has arisen from the circumstance of the instruments having been placed on the slope or breast of the hill nearly in a line with each other; in which positions, he is convinced from experience, that when strong winds prevail, the gauges are exposed to eddies or counter-currents, which prevent a portion of the water from entering the funnel, and thus a less depth of rain is obtained than is due to the elevation.

The gauges under his superintendence being all stationed either on the top or shoulder of the mountain, and exposed to the wind from every point of the compass, are not, he observes, open to this objection.

2. Supplement to a paper “On the Theory of certain Bands seen